The Many Uses Of NXT Programming

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# Summary

Students will learn the basics of NXT programming and what it is capable of by seeing examples of some cool and novel uses for NXT software and then programming an NXT robot to move through a series of obstacle courses.

# Engineering Connection

Programming is used a lot in engineering of many different types, and is used in pretty much all technology we have today, from aircraft, to pinball machines, to Google’s self-driving car. This lesson shows students the power of programming through the NXT software and gives them the opportunity to experience some of it for themselves.

# Grade Level

4-12

# Duration

60 minutes.

# Cost Per Group

None if you have computers and lego NXTs. If you don’t have any NXTs, they cost around $280 each: <http://shop.lego.com/en-US/LEGO-MINDSTORMS-NXT-2-0-8547?p=8547>.

# Materials List

For each group:

* One computer with the NXT software installed
* One already-assembled NXT robot built as a 5 minute bot: <http://www.nxtprograms.com/NXT2/five_minute_bot/>.

To Be Shared By All:

* The courses shown in the slides and handout, which can be made from blocks, boxes, paper and tape, or some other set of materials.
* A projector or something similar for displaying the presentation slides.

# Learning Objectives

* Understand that many different things can be done with NXT programming.
* Know how to program simple movements on a Lego NXT robot.
* Work with a technology design
* Apply their understanding about science and technology
* Demonstrate abilities of a technological design
* Use troubleshooting as a problem-solving method used to identify the cause of a malfunction in a technological system.
* Use information provided in manuals, protocols, or by experienced people to see and understand how things work.

# Procedure

Before the activity, assemble one 5-minute bot per student or group of students, depending on how many are available by follow these instructions: <http://www.nxtprograms.com/NXT2/five_minute_bot/>.

The rest of the procedure and assessments are embedded in the presentation slides, the presentation slides’ notes, and the handout. See there for more information.